

Attorney Docket No.: 5649.1168
Application Serial No.: 10/695,061
Filed: October 28, 2003
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REMARKS

This response is submitted in reply to the Office Action dated November 16, 2005 ("the Action"). Claims 1-7, 30, 34 and 37-40 are pending in the application. Applicant hereby requests further consideration of the present application in view of the amendments above and the comments that follow. Claims 34, 37 and 38 stand rejected. In order to advance prosecution, Applicant has canceled Claim 34 without prejudice above subject to pursuit in a future continuation application.

I. Allowed Claims

Applicants acknowledge, with appreciation, the Examiner's statement that Claims 1-7 and 30 are allowed.

II. Allowable Claims

Applicants also acknowledge, with appreciation, the Examiner's statement that Claims 39 and 40 would be allowable if rewritten into independent form including the limitations of the base claim and any intervening claims. Applicant has rewritten Claims 39 and 40 to place them in condition for allowance. Amended Claims 39 and 40 also include the suggested text of the "directly contacting" recitation suggested by the Examiner to obviate the informality claim objection to Claim 37. Allowance of Claims 39 and 40 is respectfully requested.

III. Claims 37 and 38

The Action objects to a claim informality in Claim 37. Applicant respectfully submits that the amendments to Claim 37 hereinabove obviates this objection.

The Action rejects Claims 37 and 38 as being anticipated by U.S. Patent Application Publication 2002/0079492 to Koga ("Koga") and as being obvious over U.S. Patent No. 5,874,331 to Nishigohri ("Nishigohri"). Applicant respectfully disagrees.

Applicant respectfully submits that the cited references fail to teach or suggest at least the features emphasized in Claim 37 below, as restated here for ease of discussion.

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37. A self-aligned contact structure comprising:
two adjacent gate electrodes on a substrate, each gate electrode having opposing first and second sidewalls and a top surface, wherein the first sidewalls of respective gate electrodes have respective upper portions that angle toward each other to present a sloped profile and the second sidewalls of respective gate electrodes are substantially vertical;
at least one silicon nitride liner directly contacting completely all the sidewalls and the top surface of each gate electrode; and
a self-aligned contact pad between the first sidewalls of the adjacent two gate electrodes to be electrically connected to the substrate between the adjacent two gate electrodes, the self-aligned contact pad protruding from the top surface of each gate electrode.

Embodiments of the instant invention are configured so that each of the gate electrodes has opposing first and second sidewalls and a top surface. The first sidewall has an upper portion with a sloped profile and the second sidewall has a substantially vertical profile. As shown, for example, in Figures 1 and 3A, at least one silicon nitride liner 200, 260 contacts completely all the sidewalls (both of the opposing first and second sidewalls) and the top surface thereof. The self-aligned contact pad is located between adjacent first sidewalls, which have a sloped profile portion.

In contrast, in Figures 2 and 3 of Koga, both sidewalls are sloped. Also, Koga proposes silicon nitride 106/105 that contacts the sidewall of the upper gate. Koga fails to anticipate the claimed invention.

Nishigohri fails to remedy the deficiencies of Koga. Nishigohri proposes a configuration where the silicon nitride 410, 440 contacts only a portion of the sidewalls (one sidewall and the lower portion of the other sidewall). Further, in Nishigohri, the contact pad is adjacent the vertical sidewall of the gate. Further, Applicant submits that one would not have been motivated to combine the references in a manner that would yield Claims 37 and 38 obvious, absent the teachings of the instant invention.

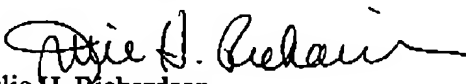
In view of the foregoing, Applicant submits that Claim 37 is patentable over the cited references. Applicant further submits that Claim 38 is also patentable for at least the reason that it depends from a patentable base claim.

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IV. Conclusion

Accordingly, Applicant submits that the present application is in condition for allowance and the same is earnestly solicited. The Examiner is encouraged to telephone the undersigned at 919-854-1400 for resolution of any outstanding issues.


Respectfully submitted,


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